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C O N F I D E N T I A L

LIMITED OFFICIAL USE MOSCOW 10748

E.O. 12356: N/A
TAGS: ENRG, UR, KSCA
SUBJECT: CODEL PELL: MEETING AT SOVIET MINISTRY OF POWER
- AND ELECTRIFICATION

REFS: A) MOSCOW 5170

- B) MOSCOW 9197

1. SUMMARY. DURING THE VISIT OF CODEL PELL TO MOSCOW, SENATORS SASSER AND BUMPERS HAD AN INFORMATIVE AND WIDE-RANGING MEETING WITH REPRESENTATIVES OF THE SOVIET MINISTRY OF POWER AND ELECTRIFICATION. DEPUTY MINISTER LOPATIN CALLED FOR A RENEWAL OF OFFICIAL COOPERATION IN ENERGY RESEARCH AND, IN RESPONSE TO THE SENATOR'S QUESTIONS, WENT ON TO DISCUSS DIFFERENT ASPECTS OF THE SOVIET ENERGY PICTURE, INCLUDING THE CURRENT AND FUTURE BREAKDOWN OF THE USE OF FOSSIL FUELS IN POWER PLANTS. THE SOVIETS CONTINUE TO LOOK TO NUCLEAR POWER TO SUPPLY MUCH OF THEIR FUTURE ENERGY NEEDS, AND LOPATIN SEEMED CONFIDENT THAT NUCLEAR ENERGY PLAN GOALS WOULD BE ACHIEVED, AND HE INSISTED THAT NUCLEAR SAFETY STANDARDS WERE RIGIDLY ADHERED TO. COAL AND GAS WOULD BE USED TO FUEL POWER PLANTS IN AREAS WHERE THESE FUELS ARE ABUNDANT. CONSUMPTION OF OIL IN POWER PLANTS WILL DECREASE. END SUMMARY.
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2. SENATORS BUMPERS (D. ARKANSAS) AND SASSER (D. TENNESSEE) MET ON AUGUST 19 WITH NIKOLAY A. LOPATIN, DEPUTY MINISTER FOR INTERNATIONAL RELATIONS OF THE USSR MINISTRY OF POWER AND ELECTRIFICATION. ALSO PRESENT WERE ARKADY REZNIKOVSKIY, CHIEF OF THE DEPARTMENT OF HYDROPOWER OF THE MINISTRY AND DIRECTOR OF THE INSTITUTE FOR RESEARCH OF THE UNIFIED POWER GRID OF THE USSR (ENEGOSET'PROYEKT);

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YURIY N. VERSHENIN, DIRECTOR OF THE INSTITUTE FOR TECHNICAL POWER CONSTRUCTION (ENERGOTECHSTROY); AND ANDREY D. SAVONOV, CHIEF ENGINEER OF GLAVZAGRANENERGO, THE MINISTRY'S SECTION ON FOREIGN RELATIONS. (SAVONOV'S SPECIAL INTEREST IS APPLYING FOREIGN EXPERIENCE TO THE ENERGY PLANS OF THE USSR.)

3. LOPATIN BEGAN AND ENDED THE MEETING BY RECALLING PREVIOUS SOVIET-AMERICAN COOPERATION IN THE AREA OF ENERGY, INCLUDING THE NOW-EXPIRED BILATERAL ENERGY AGREEMENT, AND POINTED OUT IN THE COURSE OF THE DISCUSSION AREAS WHERE SUCH COOPERATION WOULD BE USEFUL: FUSION, NUCLEAR SAFETY AND COAL PIPELINES.

CURRENT AND FUTURE POWER BREAKDOWN BY TYPE OF PLANT AND FUEL

4. IN RESPONSE TO A QUESTION BY SENATOR BUMPERS, LOPATIN GAVE THE CURRENT AND FUTURE BREAKDOWN OF THE SOVIET POWER PRODUCTION BY TYPE OF PLANT AND TYPE OF FUEL USED. HE POINTED OUT THAT CURRENTLY 79 PERCENT OF ALL POWER PLANTS WERE THERMAL; 14 PERCENT WERE HYDROELECTRIC; SIX PERCENT WERE NUCLEAR, AND ONE PERCENT WERE VARIOUS OTHER UNSPECIFIED. OF THE THERMAL ELECTRIC STATIONS, APPROXIMATELY 40 PERCENT CURRENTLY USED COAL; 30 PERCENT USED OIL, AND 30 PERCENT USED NATURAL GAS.

5. LOPATIN EXPECTED THIS BREAKDOWN TO CHANGE DRAMATICALLY IN TEN YEARS TIME. NUCLEAR POWER PLANTS, ACCORDING TO THE SOVIET ENERGY PLAN, WOULD ASSUME AN INCREASINGLY IMPORTANT ROLE AS AN ALTERNATIVE TO OIL-AND GAS-CONSUMING PLANTS AND WOULD PRODUCE 20 PERCENT OF THE USSR'S POWER IN TEN YEARS. OIL CONSUMPTION IN POWER PLANTS WOULD DECLINE, WHILE THE SHARE OF COAL IN POWER GENERATION WOULD REMAIN CONSTANT.

GEORGAPHICAL DISTRIBUTION OF POWER STATIONS

6. REPLYING TO A QUESTION ABOUT THE RELATIVE EXPENSE OF BUILDING NUCLEAR VERSUS OTHER SORTS OF POWER PLANTS, LOPATIN MADE CLEAR THAT THE GEOGRAPHICAL DISTRIBUTION OF FOSSIL FUELS DETERMINED THE COST OF CONSTRUCTING VARIOUS TYPES OF PLANTS IN DIFFERENT LOCATIONS. IN THE AREA WHERE THE LARGE OPEN-PIT MINES LIKE EKIBASTUZ AND KANSK-ACHINSK WERE SITUATED (SOUTHWEST SIBERIA), LARGE COAL-POWERED PLANTS WOULD BE BUILT, BUT NO NUCLEAR PLANTS.

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IN THE TYUMEN AREA (NORTHWEST SIBERIA), WHERE THERE WERE EXTENSIVE OIL FIELDS, THE SOVIETS PLANNED TO USE THE ACCOMPANYING GAS TO GENERATE ENERGY IN 800 MW "TURBO-GENERATION" PLANTS. NUCLEAR-POWERED PLANTS, LOPATIN NOTED, WOULD BE MORE EXPENSIVE IN THIS REGION. CONVERSELY, IN THE EUROPEAN PART OF THE USSR, WHERE THERE WAS RELATIVELY LITTLE COAL (EMBASSY NOTE: OR OTHER FOSSIL FUELS), THE SOVIET PLANNED TO BUILD FEW NEW THERMAL POWER PLANTS.

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TRANSPORTATION OF ENERGY

7. ANSWERING A QUESTION FROM SENATOR SASSER CONCERNING POSSIBLE SOVIET PLANS FOR TRANSPORTING COAL THROUGH PIPELINES, LOPATIN SAID THAT THIS POSSIBILITY HAD EXCITED CONSIDERABLE DISCUSSION AMONG SOVIET PLANNERS. HE NOTED THAT REPRESENTATIVES OF TWO "OPPOSING" SCHOOLS OF THOUGHT WERE PRESENT AT THE MEETING AND IMPLIED THAT THERE WAS A COMPETITION FOR SCARCE INVESTMENT RESOURCES.

8. FIRST SCHOOL: THE DEPUTY MINISTER NOTED THAT REZNIKOVSKIY WAS A LEADING PROPONENT OF INVESTING IN HIGH-TENSION POWER LINES AND REGARDED THIS AS THE CHEAPEST METHOD OF TRANSPORTING ELECTRICITY OVER LONG DISTANCES. THIS IDEA FOUND MORE SUPPORT NOW BECAUSE OF THE SUCCESS IN CONSTRUCTING POWER GRIDS USING HIGH-TENSION LINES OF 750 KILOVOLTS. LOPATIN EXPLAINED THAT THE USSR WAS ENGAGED IN THE CONSTRUCTION OF A 1150-KILOVOLT POWER LINE 4000 KILOMETERS LONG FROM SIBERIA TO EUROPE. ANOTHER 5,000 KILOMETER PARALLEL LINE, CONVEYING DIRECT CURRENT AT 1600 KILOVOLTS, WAS UNDER CONSIDERATION.

9. SECOND SCHOOL: ALTHOUGH PRIORITY WAS BEING GIVEN TO THE TRANSPORT OF ELECTRICITY, LOPATIN OBSERVED THAT SOME COAL PIPELINES WOULD ALSO BE BUILT. PLANS HAD BEEN HAMPERED, HOWEVER, BY A DEBATE BETWEEN THE SUPPORTERS OF WATER TRANSPORT (COAL SLURRY) AND WHAT HE DESCRIBED AS "AIR TRANSPORT" OF COAL ("VOZDUSHNIY TRANSPORT"). LOPATIN MAINTAINED THAT THE BEST SOLUTION WAS SOMEWHERE IN BETWEEN THE TWO POSITIONS. (EMBASSY COMMENT: WE ARE UNCERTAIN AS TO WHAT LOPATIN MEANT BY "AIR TRANSPORT" OR WHAT MIDDLE SOLUTION HE ENVISAGES. END COMMENT.) ACCORDING TO LOPATIN, COAL PIPELINE CONSTRUCTION COULD BE A FRUITFUL AREA OF COOPERATION BETWEEN THE UNITED STATES AND THE USSR: THE SOVIETS HAD GAINED A GREAT DEAL OF EXPERIENCE IN BUILDING PIPELINES, BUT WOULD BE INTERESTED IN PURCHASING EQUIPMENT FROM THE UNITED STATES.

NUCLEAR ENERGY

10. NUCLEAR PLAN: BEHIND SCHEDULE? ASKED ABOUT THE PROBLEMS OF NUCLEAR ENERGY DEVELOPMENT NOW BEHIND SCHEDULE IN THE USSR, LOPATIN REPLIED THAT THE SOVIET UNION WAS JUST BEGINNING THE MASS (OR "SERIAL") PRODUCTION OF NUCLEAR POWER PLANTS. TO REACH THIS STAGE THE COUNTRY HAD TO BUILD A NUMBER OF AUXILIARY FACILITIES AND SUPPLY CENTERS. THIS WORK, HE POINTED OUT, HAD BEEN COMPLETED. IN ADDITION, TEAMS OF SKILLED CONSTRUCTION WORKERS HAD BEEN TRAINED AND WERE NOW AVAILABLE. NEW TOWNS, NOT JUST PROVISIONAL TENT CITIES, HAD BEEN BUILT FOR THE WORKERS ON THE CONSTRUCTION SITES. THE PRODUCTION OF EQUIPMENT FOR THE PLANTS HAD BEEN ACCELERATED RECENTLY, AND PREPARATORY WORK HAD NOW REACHED THE FINAL STATE. IN THE PAST FEW YEARS, LOPATIN ADMITTED, THE USSR DID SUFFER FROM SOME "GROWTH AILMENTS." NOW, HOWEVER, THE AVAILABILITY OF STABLE WORKING TEAMS AND FACILITIES MADE HIM CONFIDENT THAT THE PLAN FOR NUCLEAR ENERGY DEVELOPMENT WOULD BE FULFILLED.

11. DISPOSAL OF NUCLEAR WASTE: ALTHOUGH HIS MINISTRY IS NOT RESPONSIBLE FOR THE DISPOSAL OF NUCLEAR WASTES,

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LOPATIN WAS FAMILIAR WITH THE WASTE DISPOSAL PROCESS AND HAD RECEIVED ASSURANCES FROM AN UNSPECIFIED RESPONSIBLE AGENCY THAT DISPOSAL PROBLEMS WOULD NOT GIVE RISE TO BOTTLENECKS. THE SOVIET UNION, HE EXPLAINED,WAS AN ACTIVE MEMBER OF THE IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) AND ADHERED CLOSELY TO THE VIENNA PROTOCOLS. IN

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CONFORMITY WITH THESE, THE USSR HAD DEVELOPED A RELIABLE TECHNICAL SOLUTION TO THE PROBLEM OF NUCLEAR WASTE. AS LOPATIN DESCRIBED IT, BOTH LIQUID AND SOLID WASTES WERE STORED IN PLANTS FOR SEVEN YEARS, AFTER WHICH THE WASTES WERE TRANSPORTED TO SPECIALIZED CONTAINERS (THESE CONTAINERS, LOPATIN COMMENTED, WERE THE SAME AS THOSE USED IN THE UNITED STATES, FRG, AND JAPAN). THE USSR HAD REPROCESSING FACILITIES. HE ADDED THAT THE WASTE DISPOSAL WAS COSTLY AND SUGGESTED THAT ALL NATIONS SHOULD COOPERATE IN DEALING WITH THIS PROBLEM REGARDLESS OF THEIR POLITICAL ORIENTATION. IN FACT, THE USSR WAS ALREADY COOPERATING WITH EXPERTS FROM MANY COUNTRIES TO REDUCE THE COST OF WASTE DISPOSAL CONTAINERS. HE NOTED THAT THE MEMBERS OF THE RECENT U.S. ELECTRIC UTILITY DELEGATION SHARED HIS VIEW THAT THE UNITED STATES AND THE SOVIET UNION SHOULD WORK TOGETHER ON NUCLEAR SAFETY.
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12. EXPORT OF NUCLEAR REACTORS: ACCORDING TO LOPATIN, THE USSR WAS INVOLVED IN VARIOUS COOPERATIVE EFFORTS TO BUILD NUCLEAR REACTORS, BUT DID NOT EXPORT THEM. HE MENTIONED SPECIFIC EXAMPLES OF COOPERATION WITH COMECON COUNTRIES: THE "NORD" PLANT IN THE GDR, THE "PAKHSHA" PLANT (PHONETIC) IN HUNGARY AND PLANTS IN CZECHOSLOVAKIA AND BULGARIA. IN GENERAL, THE USSR, A SIGNATORY OF THE NON-PROLIFERATION TREATY, FOLLOWED A POLICY OF NOT SELLING REACTORS TO NON-SIGNATORY NATIONS.
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13. FAST BREEDER REACTORS: LOPATIN OBSERVED THAT NO ONE ON A RECENT AMERICAN ENERGY DELEGATION UNDERSTOOD WHY THE UNITED STATES WAS NOT PROCEEDING MORE RAPIDLY TO CONSTRUCT A BREEDER REACTOR. SENATOR SASSER POINTED OUT THAT THERE WAS A DIVERGENCE OF OPINION IN THE ROOM ABOUT THE PROSPECTS FOR THE BREEDER REACTOR. WHILE HE FAVORED A PROGRAM TO BUILD SUCH REACTORS, SENATOR BUMPERS WAS OPPOSED. WHAT WAS THE SOVIET EXPERIENCE? LOPATIN REPLIED THAT SOME IN THE USSR REGARDED FAST BREEDER REACTORS, WHICH HE CALLED "FAST NEUTRON REACTORS" AS RISKIER AND MORE COMLICATED THAN CONVENTIONAL REACTORS AND AS REQUIRING A GREATER CAPITAL INVESTMENT. LOPATIN'S OPINION WAS THAT THE OPTIMAL TECHNICAL SOLUTION WOULD BE A COMBINATION OF THE HEAT (TEPLOVOY) REACTOR AND THE FAST BREEDER. THE SOVIET UNION HAD STARTED CONSTRUCTION OF A SERIES OF DIFFERENT BREEDERS: IN ADDITION TO THE 600 MW REACTOR THEY HAD CONSTRUCTED, THE SOVIETS WERE BUILDING ONE WITH A CAPACITY OF 800 MW AND DESIGNING A 1600 MW BREEDER REACTOR.
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14. COMPARATIVE COSTS OF BREEDER AND LIGHT WATER REACTORS: LOPATIN SAID THE SOVIET UNION HAD CALCULATED THE EXACT FIGURES OF THE COST PER POWER UNIT OF ELECTRICITY GENERATED BY FAST BREEDER REACTORS AS COMPARED WITH CONVENTIONAL REACTORS, AND THEY WOULD BE WILLING TO SUPPLY THE FIGURES IF REQUESTED. THESE FIGURES SHOWED THAT THE COST PER

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POWER UNIT WAS HIGHER FOR BREEDER REACTORS IF ONE TOOK INTO ACCOUNT ONLY THE COST OF GENERATING THE ELECTRICITY ITSELF. BUT, IF ONE CONSIDERED THE VALUE OF THE FUEL GENERATED, ONE FOUND THAT THE COST WAS SOMEWHAT LOWER. IN THE PAST THE SOVIET UNION HAD BUILT LIGHT-WATER REACTORS IN PREFERENCE TO THE HEAVY-WATER VARIETY. HOWEVER, THEY WERE NO LONGER BUILDING NEW LIGHT-WATER FACILITIES BECAUSE OF THE AMOUNT OF TIME IT TOOK TO BUILD THEM. (EMBASSY COMMENT: PRESUMABLY, LOPATIN WAS REFERRING TO NEW GRAPHITE MODERATED LIGHT-WATER REACTORS, AND NOT PRESSURED WATER REACTORS. SEE MOSCOW 4207. END COMMENT.)

ENVIRONMENTAL CONCERNS

15. LOPATIN MAINTAINED THAT THE SOVIET UNION DID NOT HAVE A PROBLEM WITH "ACID RAIN," ALTHOUGH THERE WAS A POTENTIAL PROBLEM IN SIBERIA WHERE COAL-POWERED PLANTS WERE CONCENTRATED. SOVIET SCIENTISTS WERE TRYING TO DEVELOP A POLICY OF "NO WASTE" IN THE USE OF FUELS. ASHES WERE OFTEN AN ENVIRONMENTAL PROBLEM, BUT THEY WOULD BE USED INCREASINGLY TO PRODUCE ECONOMICALLY USEFUL PRODUCTS. WASTE HEAT WOULD ALSO BE BETTER UTILIZED, LOPATIN NOTED. IN RESPONSE TO SENATOR BUMPERS QUESTION, LOPATIN AFFIRMED THAT THE SOVIETS USED "SCRUBBERS." LOPATIN WENT ON TO ADD THAT THERE WAS A NATIONAL AGENCY (UNSPECIFIED) THAT ADOPTED ENVIRONMENTAL STANDARDS.

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INVESTIGATED COMPLIANCE AND GENERALLY "CREATED PROBLEMS" FOR HIS MINISTRY. THE SULFUR CONTENT OF SOVIET COAL, HE NOTED, VARIED FROM 0.5 TO 2.5 PERCENT.

FUSION TECHNOLOGY AND SOLAR ENERGY

16. SOLAR: LOPATIN EXPLAINED THAT THERE WAS ONLY A 5 MW SOLAR PLANT IN THE SOVIET UNION, BUT THE COUNTRY HAD A BLUEPRINT FOR A SOLAR ENERGY PLANT OF 200 MW. THE SOVIETS FOUND THESE PLANTS TO BE A COSTLY UNDERTAKING. THE CONSENSUS OF SOVIET SPECIALISTS WAS THAT THE EFFICIENTY OF THE TECHNOLOGY COULD BE SIGNIFICANTLY INCREASED BY COMBINING SOLAR AND THERMAL PLANTS.

17. FUSION: LOPATIN SAID THAT A NUMBER OF SERIOUS SCIENTISTS IN THE USSR THOUGHT THAT A VIABLE FUSION TECHNOLOGY COULD BE ACHIEVED IN THIS CENTURY. HE EXPRESSED THE VIEW THAT THIS WAS A FRUITFUL AREA FOR SOVIET-AMERICAN COOPERATION. IN RESPONSE TO A QUESTION ABOUT WHETHER THE SOVIETS WERE WORKING ON LASER FUSION, AS WELL AS MAGNETIC FUSION, VERSHENIN ANSWERED THAT THE SOVIET TECHNOLOGY WAS BASED ON THE PRINCIPLE OF MAGNETIC FIELD CONTAINMENT OF PLASMA, USING SUPERCONDUCTORS.

18. COMMENT: LOPATIN'S DESCRIPTION OF SOVIET ENERGY PLANS RECALLED THE EXPLANATION OF THE NEW LONG-TERM ENERGY PROGRAM WE HEARD FROM DEPUTY DIRECTOR IVANOV OF IMEMO (MOSCOW 5170). SOME OF THE SALIENT FEATURES OF THE ENERGY FUTURE, AS THE SOVIETS SEE IT ARE:

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- -- AN EFFORT TO MOVE AWAY FROM FUELING POWER PLANTS WITH OIL,

- -- CONTINUED AND INCREASED USE OF COAL AND GAS RESOURCES IN POWER PLANTS IN THOSE REGIONS OF THE COUNTRY WHERE THESE RESOURCES ARE ABUNDANT,

- -- SOME INCREASE IN HYDROELECTRIC POWER GENERATION, BUT A VERY SIGNIFICANT INCREASE IN NUCLEAR POWER (NUCLEAR POWER WILL BE CONCENTRATED IN THE EUROPEAN USSR, WHICH IS POOR IN FOSSIL FUEL RESOURCES.)

- -- A GENERALLY VERY SANGUINE ASSESSMENT OF THE POTENTIAL FOR FUTURE EXPANSION OF NUCLEAR ENERGY, WHICH REMAINS KEY TO SOVIET ENERGY PLANS. THE RECENT SHAKE-UP IN THE NUCLEAR ENERGY BUREAUCRACY (MOSCOW 9197) ATTESTS TO THE IMPORTANCE ATTACHED TO THIS AREA.
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19. ALTHOUGH HE DID NOT SPECIFICALLY MENTION THE CREATION OF THE STATE COMMITTEE ON ATOMIC ENERGY (MOSCOW 9197), LOPATIN'S STRESS ON SOVIET EFFORTS TO CONFORM TO IAEA GUIDELINES SUGGESTS THAT THE STATE COMMITTEE MAY HAVE BEEN ESTABLISHED AS AN OBLIGATION IMPOSED BY MEMBERSHIP IN THE IAEA. END COMMENT.
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20. THE CODEL DID NOT HAVE THE OPPORTUNITY TO CLEAR THE MESSAGE BEFORE DEPARTING FROM MOSCOW. ZIMMERMANN
END OF MESSAGE CONFIDENTIAL

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